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## SEARCH REQUEST FORM

Scientific and Technical Information Center

EIC 2600

Requester's Full Name DAC V. HA Examiner # 76772 Date 12/14/06  
Art Unit 2611 Phone Number 28040 Serial Number 6298092  
Office Location JEFF 2485 Format preferred (circle) PAPER EMAIL BOTH

If more than one search is submitted, please prioritize searches in order of need.  
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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Let us know what you already have and so do not need.

Include the keywords, synonyms and meaning of acronyms. Define all terms that may have a specific meaning. Please attach a copy of the background, abstract, claims and other pertinent information.

Please state how the terms or keyword strings should relate to one another.

Title of the Invention

Inventor(s)

Method of Controlling Communication Parameters of  
Heath, Robert W. JR. wireless systems

Earliest Priority date to be used

12/15/1999

Patent #  
6,298,092

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### STAFF USE ONLY

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*1 / 1 PLUSPAT - ©QUESTEL-ORBIT - image***Patent Number :** US6298092 B1 20011002 [US6298092]**Title :**

(B1) Methods of controlling communication parameters of wireless systems

**Patent Assignee :**

(B1) IOSPAN WIRELESS INC (US)

**Patent Assignee :**

Iospan Wireless, Inc., San Jose CA [US]

**Inventor(s) :**

(B1) HEATH JR ROBERT W (US); SEBASTIAN PEROOK K (US); PAULRAJ AROGYASWAMI J (US)

**Application Nbr :**

US58594800 20000602 [2000US-0585948]

**Filing Details :**

C.I.P. of US464372 19991215 [1999US-0464372]

**Priority Details :**

US46437299 19991215 [1999US-0464372]

US58594800 20000602 [2000US-0585948]

**Intl Patent Class :**

(B1) H04B-007/06 H04B-007/08

**IPC Advanced All :**

H01Q-001/24 [2006-01 A - I R M EP]; H01Q-003/26 [2006-01 A - I R M EP]; H04B-007/06 [2006-01 A - I R M EP]; H04B-007/08 [2006-01 A - I R M EP]; H04L-001/00 [2006-01 A - I R M EP]; H04L-001/06 [2006-01 A - I R M EP]

**IPC Core All :**

H01Q-001/24 [2006 C - I R M EP]; H01Q-003/26 [2006 C - I R M EP]; H04B-007/04 [2006 C - I R M EP]; H04B-007/08 [2006 C - I R M EP]; H04L-001/00 [2006 C - I R M EP]; H04L-001/02 [2006 C - I R M EP]

**EPO ECLA Class :**H01Q-001/24A3  
H01Q-003/26C  
H04B-007/06C2C  
H04B-007/06M  
H04B-007/08C4J3  
H04B-007/08S  
H04L-001/00A  
H04L-001/00A1M  
H04L-001/00A5  
H04L-001/00A9B  
H04L-001/06  
H04L-001/06T**EPO ICO Class :**

T04B-007/06C2F

**US Patent Class :**

ORIGINAL (O) : 375267000; CROSS-REFERENCE (X) : 375299000 375347000  
455069000 455101000 455102000 455272000

**Document Type :**

Corresponding document

**Citations :**

US5815488; US5832044; US5933421; US6058105; US6064662; US6097771;  
US6144711; US6175550; US6198775; EP0951091 A2; WO9809381; WO9809385  
Paulraj, A., Taxonomy of space-time processing for wireless networks, IEE Proc--Radar  
Sonar Navig., vol. 145, No. 1, Feb. 1998.

**Publication Stage :**

(B1) U.S. Patent (no pre-grant pub.) after Jan. 2, 2001

**Abstract :**

The present invention provides a method for controlling a communication parameter in a channel through which data is transmitted between a transmit unit with M transmit antennas and a receive unit with N receive antennas by selecting from among proposed mapping schemes an applied mapping scheme according to which the data is converted into symbols and assigned to transmit signals TSp, p=1 . . . M, which are transmitted from the M transmit antennas. The selection of the mapping scheme is based on a metric; in one embodiment the metric is a minimum Euclidean distance dmin,rx of the symbols when received, in another embodiment the metric is a probability of error P(e) in the symbol when received. The method can be employed in communication systems using multi-antenna transmit and receive units of various types including wireless systems, e.g., cellular communication systems, using multiple access techniques such as TDMA, FDMA, CDMA and OFDMA.


**Update Code :**

2001-41

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1 / 1 LGST - ©EPO

**Patent Number :**

 US6298092 B1 20011002 [US6298092]

**Application Number :**

US58594800 20000602 [2000US-0585948]

**Action Taken :**

20001003 US/AS-A

ASSIGNMENT

OWNER: GIGABIT WIRELESS, INC. 3099 NORTH 1ST STREET SAN J

ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:HEATH, ROBERT W.,

JR.;SEBASTIAN, PEROOR K.;PAULRAJ, AROGYASWAMI

J.;REEL/FRAME:011216/0241;SIGNING DATES FROM 20000926 TO 20000927

20001207 US/AS-A

ASSIGNMENT

OWNER: IOSPAN WIRELESS, INC. 3099 NORTH 1ST STREET SAN JO; EFFECTIVE

DATE: 19981218

ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:GIGABIT WIRELESS,  
INC.;REEL/FRAME:011336/0876

20040106 US/RF-A  
REISSUE APPLICATION FILED  
EFFECTIVE DATE: 20031002


**Update Code :**

2004-31

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1 / 1 CRXX - ©CLAIMS/RRX

**Patent Number :**

 6,298,092 A 20011002 [US6298092]

**Patent Assignee :**

Iospan Wireless Inc

**Actions :**

20031002 REISSUE REQUESTED  
ISSUE DATE OF O.G.: 20040106  
REISSUE REQUEST NUMBER: 10/678053  
EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 3634

Reissue Patent Number:

Search statement 4

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

6298092

LEXIS-NEXIS PATENT;ALL FILE

<=1> Get Drawing Sheet 1 of 6  
<=15> Link to Claims Section

October 2, 2001

Methods of controlling communication parameters of wireless  
systems.

REISSUE: October 2, 2003 - Reissue Application filed Ex. Gp.: 3634; Re. S.N.  
10/678,053 (O.G. January 6, 2004)

INVENTOR: Heath, Jr., Robert W. - Hayward, California, United States (US);  
Sebastian, Peroor K. - Mountain View, California, United States (US); Paulraj,  
Arogyaswami J. - Stanford, California, United States (US)

APPL-NO: 585948 (09)

FILED-DATE: June 2, 2000

GRANTED-DATE: October 2, 2001

ASSIGNEE-PRE-ISSUE: October 3, 2000 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE  
DOCUMENT FOR DETAILS)., GIGABIT WIRELESS, INC. 3099 NORTH 1ST STREET SAN JOSE,  
CALIFORNIA, 95134, Reel and Frame Number: 011216/0241  
December 7, 2000 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).,  
IOSPAN WIRELESS, INC. 3099 NORTH 1ST STREET SAN JOSE, CALIFORNIA, 95134, Reel and  
Frame Number: 011336/0876

ASSIGNEE-AT-ISSUE: Iospan Wireless, Inc., San Jose, California, United States  
(US), United States company or corporation (02)

LEGAL-REP: Lumen Intellectual Property Services

PUB-TYPE: October 2, 2001 - Utility Patent having no previously published  
pre-grant publication (B1)

PUB-COUNTRY: United States (US)

REL-DATA:  
Continuation-in-part of Ser. No. 09/464372, December 15, 1999, PENDING

US-MAIN-CL: 375#267

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